

Application No. 10/012,210  
Reply to Office Action dated June 7, 2004

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A device configured to electrically connect first and second circuit boards, comprising:
  - a flexible substrate;
  - a plurality of contact pads on a first surface of the substrate configured to make electrical contact with contact pads of the first circuit board; and
  - a strain relief structure, positioned between two of the plurality of contact pads.
2. (Original) The device of claim 1 wherein the strain relief structure is an aperture, penetrating through the flexible substrate from the first surface to a second surface.
3. (Original) The device of claim 2 wherein the aperture has, in plan view, a rectangular shape.
4. (Original) The device of claim 1, wherein the strain relief structure is a thinned region of the flexible substrate.
5. (Original) The device of claim 4, wherein the thinned region has, in plan view, a rectangular shape.
6. (Original) The device of claim 1, wherein the strain relief structure is centered on a line between centers of two of the plurality of contact pads.
7. (Currently Amended) The device of claim 1, further comprising a plurality of electrical traces, each of the plurality of electrical traces being in electrical contact

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with a respective one of the plurality of contact pads and configured to place the respective contact pad in electrical contact with the second circuit board.

8. (Currently Amended) The device of claim 7, wherein the strain relief structure is positioned such that it electrically interrupts one of the plurality of electrical traces.

9. (Currently Amended) ~~An~~ A first electrical connector, comprising:  
a flexible substrate;  
a plurality of contact pads arranged in a regular configuration on a first surface of the substrate;

a plurality of electrical traces on the flexible substrate, each of the plurality of electrical traces being in electrical contact with a respective one of the plurality of contact pads and configured to provide electrical coupling with a second electrical connector; and

a plurality of apertures penetrating through the flexible substrate, the plurality of apertures arranged in a regular configuration and intercalated into the plurality of contact pads.

10. (Currently Amended) A method of manufacturing a flexible connector, comprising:

forming, on a first surface of a flexible substrate, a plurality of contact pads;

forming, on the flexible substrate, a plurality of electrical traces, each of the plurality of electrical traces being in contact with a respective one of the plurality of contact pads, at least one of the plurality of electrical traces being configured to place the respective one of the plurality of contact pads in electrical contact with an additional connector; and

forming, between two of the plurality of contact pads, a strain relief structure.

11. (Original) The method of claim 10, further including breaking one of the electrical traces with the forming the strain relief structure step.

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12. (Original) The method of claim 10 wherein the strain relief structure is an aperture penetrating the flexible substrate from the first surface to a second surface.

13. (Original) The method of claim 10, wherein each of the plurality of electrical traces is formed on either the first surface of the flexible substrate, a second surface of the substrate or an inner layer of the substrate.

14. (Currently Amended) A flexible connector for placing first and second circuit boards in electrical contact, comprising:

a flexible substrate;

a plurality of contact pads formed on a first surface of the substrate and arranged in a regular configuration in a contact region of the ~~substrate~~ flexible connector; and

means for increasing flexibility of the substrate in the contact region.

15. (Previously Presented) The connector of claim 14 wherein the means for increasing flexibility comprises a plurality of apertures intercalated with the plurality of contact pads and penetrating the flexible substrate from the first surface to a second surface, opposite the first.

16. (Previously Presented) The connector of claim 14 wherein the means for increasing flexibility comprises a plurality of blind apertures intercalated with the plurality of contact pads and penetrating the flexible substrate from the first surface to selected depth.

17. (Previously Presented) The connector of claim 14 wherein the means for increasing flexibility comprises a thinning of the flexible substrate in the contact region, relative to a thickness of the substrate outside the contact region.

18. (New) The first electrical connector of claim 9 wherein each of the plurality of apertures is configured to increase flexibility of the substrate.

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19. (New) The first electrical connector of claim 9, further comprising an additional electrical trace on the flexible substrate in electrical contact with one of the plurality of contact pads, and wherein one of the plurality of apertures is positioned such that the additional electrical trace is electrically interrupted by the one of the plurality of apertures.

20. (New) The first electrical connector of claim 9, further comprising an additional plurality of electrical traces on the flexible substrate, each of the additional plurality of electrical traces being in electrical contact with at least a respective one of the plurality of contact pads, and wherein ones of the plurality of apertures are positioned such that each of the additional electrical traces is electrically interrupted by a respective one of the plurality of apertures.

21. (New) The method of claim 13 wherein at least one of the plurality of electrical traces is formed on the inner layer of the substrate.